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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VII
726 MINNESOTA AVENUE
KANSAS CITY, KANSAS 66101

FEB 4 1994

MEMORANDUM

SUBJECT: Steelcote Site Investigation

FROM: Harry Gabbert
RCRA/GEOL

TO: Cynthia Hutchison
RCRA/RCOM

As requested, I have reviewed the document titled "Site Investigation Report, Steelcote Facility, St. Louis, Missouri" submitted by Shannon & Wilson, Inc. for Steelcote and dated September 30, 1993. In addition, I have reviewed the document titled "Results of Cone Penetrometer Tests and Reverse Slug Tests, Steelcote Facility, St. Louis, Missouri" also submitted by Shannon & Wilson, Inc. for Steelcote and dated August 1993. These documents were submitted in response to the March 4, 1993, EPA comment letter pursuant to the September 30, 1991, Consent Order.

The Cone Penetrometer Tests (CPT) have achieved the goal of geological characterization of the site. Data generated and interpreted by way of cross-sections of the site are of excellent quality. Reverse slug testing has been completed in an acceptable manner, and hydrogeological data given appears to be in the range for the type of material underlying the site. Steelcote states the results of the slug test indicate that the monitoring wells are constructed properly. While well construction may be acceptable, the well design with 45 foot screens is not adequate for the site. The CPT data confirms that the underlying unconsolidated deposits are heterogenaceous, and distinct preferential flow paths need to be monitored for contaminant migration.

Steelcote states that apparently there is a perched water zone some distance above the water table. The CPT data confirms this, with the sandy silt zone overlying a silty clay above the bedrock as shown on Figure 7. The water level depths still appear to be anomalous in some areas. This is probably due to the well screens of the current well system being screened through the perched aquifer and into the water table. A

monitoring well system capable of screening discrete preferential pathways for contaminant movement must be installed at this site. The most acceptable zone to be screened would be the interface of the sandy silt and bedrock upper surface and the lower surface of any perched water tables as indicated by the CPT.

Analytical results for the four wells show a great deal of fluctuation in contaminant concentrations. For example, Well SWGW/1(C) shows Xylene concentrations ranging from 10 ug/l to 2100 ug/l, Toluene from ND to 2000 ug/l then back to ND, and Formaldehyde from 380 ug/l to ND. Steelcote does not attempt to explain these wide differences that have occurred on a quarterly basis. Again, the excessive screened intervals may be the cause for the fluctuating contaminant concentrations due to dilution and multiple sources of contamination within the saturated zone.

Steelcote's proposal to discontinue sampling for some parameters based on the last four sampling events is unacceptable, due to the fluctuation in concentration levels for some of the major contaminants of concern. Groundwater data from the 45 foot screens is considered acceptable only as a detection mechanism. Detection was accomplished by the current monitoring well system. Shorter screens covering specific intervals where preferential flow is indicated would be the only acceptable method to determine vertical and horizontal extent, as well as representative concentration levels for contaminants of concern.

The CPT portion of the report was very good and yielded a great deal of information on the geology of the site. Cross sections illustrated on Figures 7 and 8 are excellent depictions of the geology of the site and should serve as a guide to more zone specific groundwater monitoring. However, Figures 6 and 9 which are titled "Bedrock Contours and Water Level Contours," respectively may be labeled incorrectly. The contours shown on Figure 6 appears to be water levels, and the contours on Figure 9 correspond to top of bedrock as is discussed in the text. These figures should be re-labeled if the above statement is true. Units of measure for the contours should also be given on the map legend. In addition, water level contours may be influenced by perched water entering the long screened interval resulting in a less than accurate water table map of the site.

Although the report is acceptable for preliminary data and partial site characterization, the proposed plan to discontinue sampling for certain parameters as stated in the text must be disapproved at this time. Steelcote should submit a plan to determine the vertical and horizontal extent, including concentrations, of contaminants detected during the sampling events discussed in the report. This plan should include specifications for wells to be screened in specific preferential flow paths as determined by the CPT study. In addition, a contingency plan must be included which will outline, in detail,

the further delineation of contaminant migration, should that be indicated from new data. It is further recommended that Steelcote delay the eight quarterly sampling events scheduled to begin February 15th until the new groundwater monitoring system has been installed.

If you have additional comments and/or questions, please contact me at 7652.